

# KIC 008042747

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008042747-01	OBS	7861.01	469.525683	381.404142	354.5	5.649	7.9	8.1	1.03	6197	2.21	0.95

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008042747-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—CENT_FEW_DIFFS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

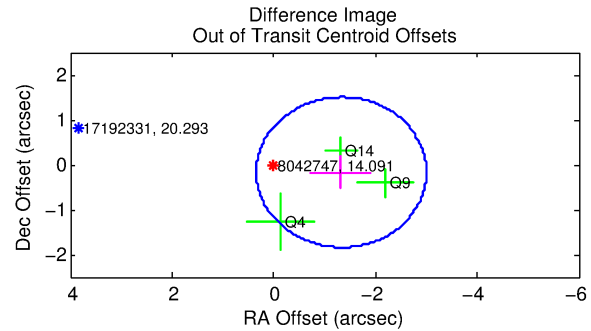
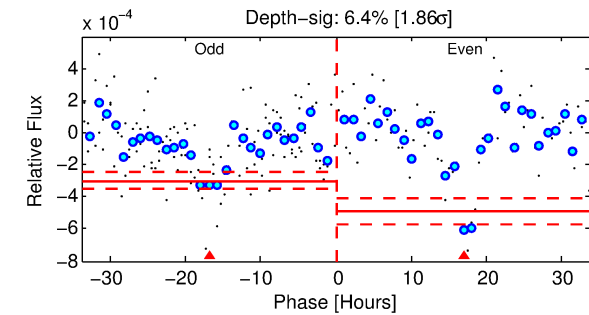
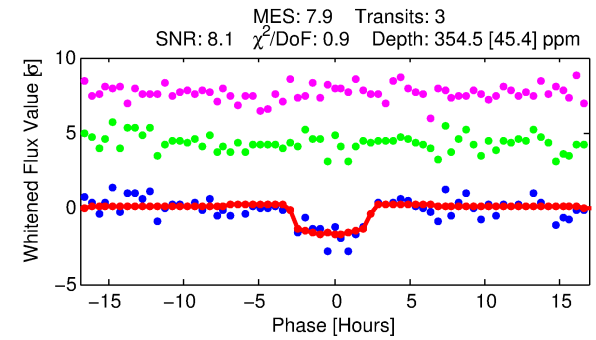
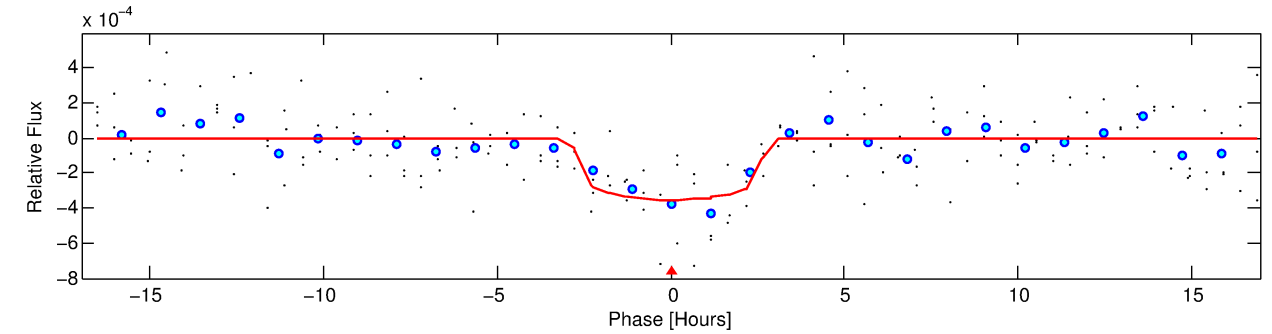
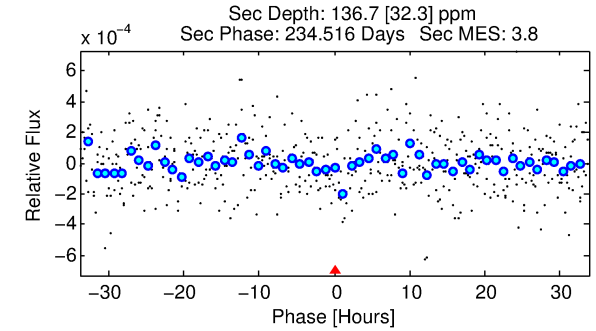
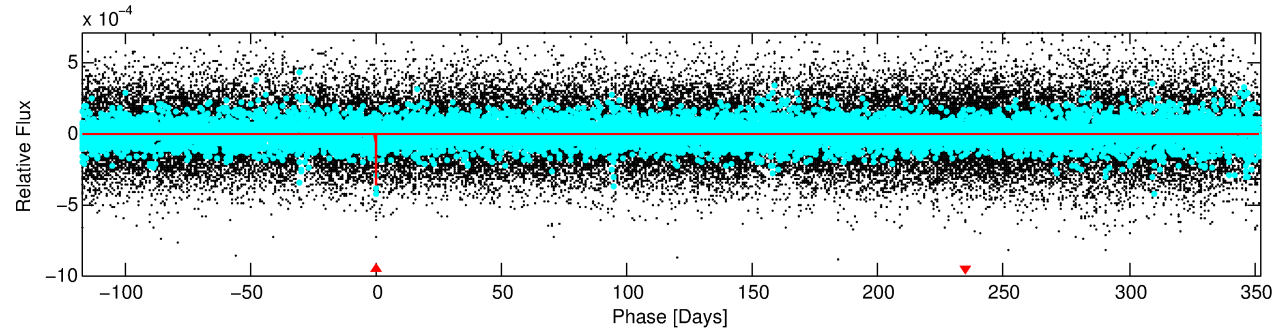
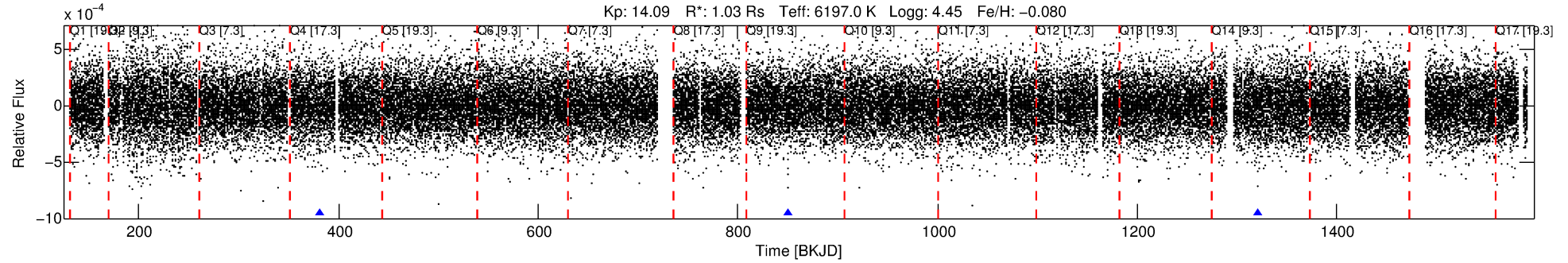
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008042747-01

No Significant Match Found

# DV One-Page Summary

KIC: 8042747 Candidate: 1 of 1 Period: 469.526 d



## DV Fit Results:

Period = 469.52568 [0.00736] d  
Epoch = 381.4041 [0.0101] BKJD  
Rp/R\* = 0.0196 [0.0150]  
a/R\* = 357.88 [1406.04]  
b = 0.85 [1.31]  
Seff = 0.95 [0.41]  
Teff = 252 [27] K  
Rp = 2.21 [1.85] Re  
a = 1.2202 [0.3453] AU  
Ag = 22901.03 [36724.07] [0.62σ]  
Teffp = 4789 [1863] K [2.43σ]

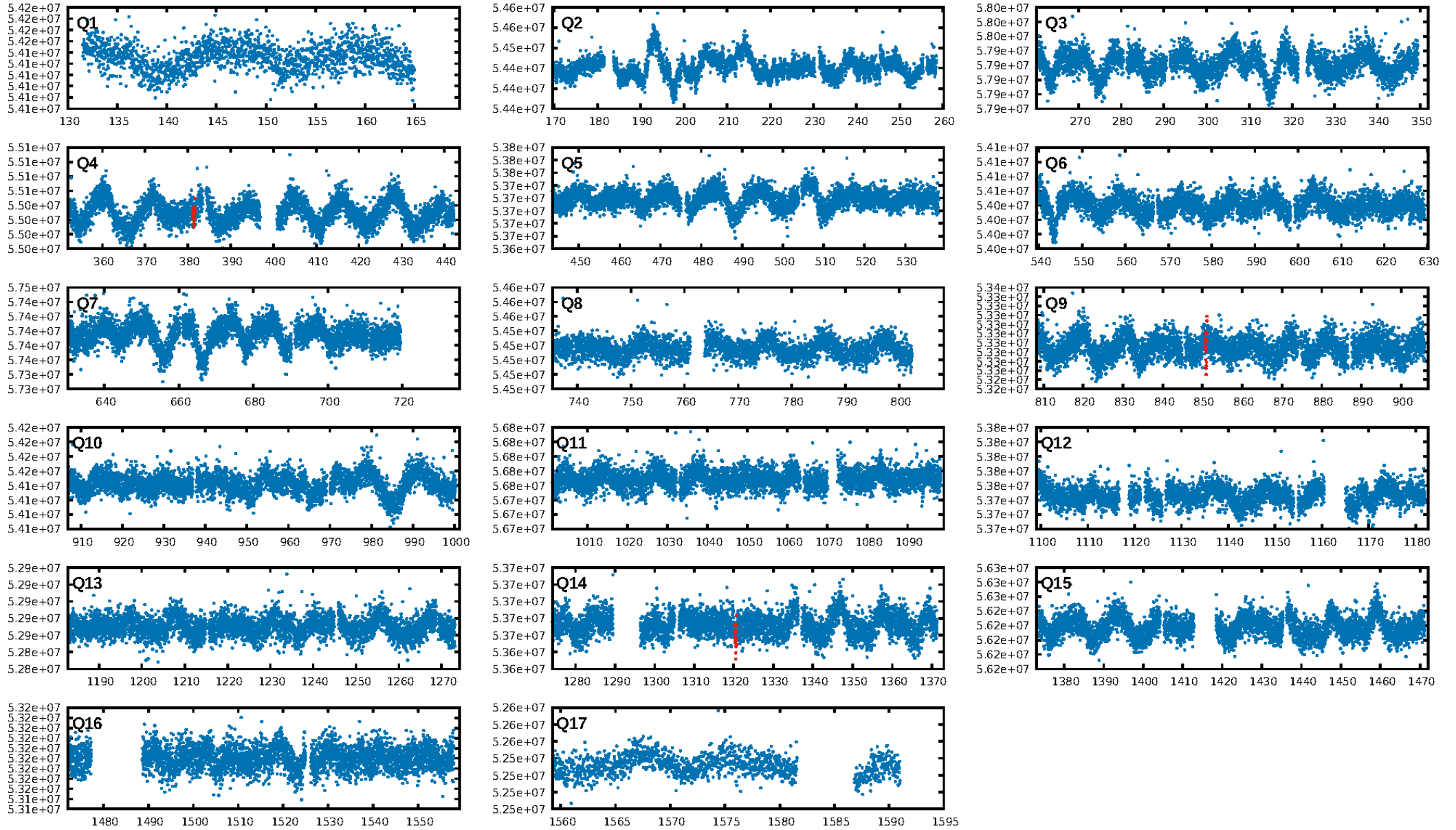
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 71.7%  
ModelChiSquareGof-sig: 99.2%  
Bootstrap-pfa: 3.73e-17  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -2.603  
Centroid-sig: 84.0%  
Centroid-so: 0.520 arcsec [0.36σ]  
OotOffset-rm: 1.340 arcsec [2.41σ]  
KicOffset-rm: 1.379 arcsec [2.96σ]  
OotOffset-st: 1/0/1/1 [3]  
KicOffset-st: 1/0/1/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

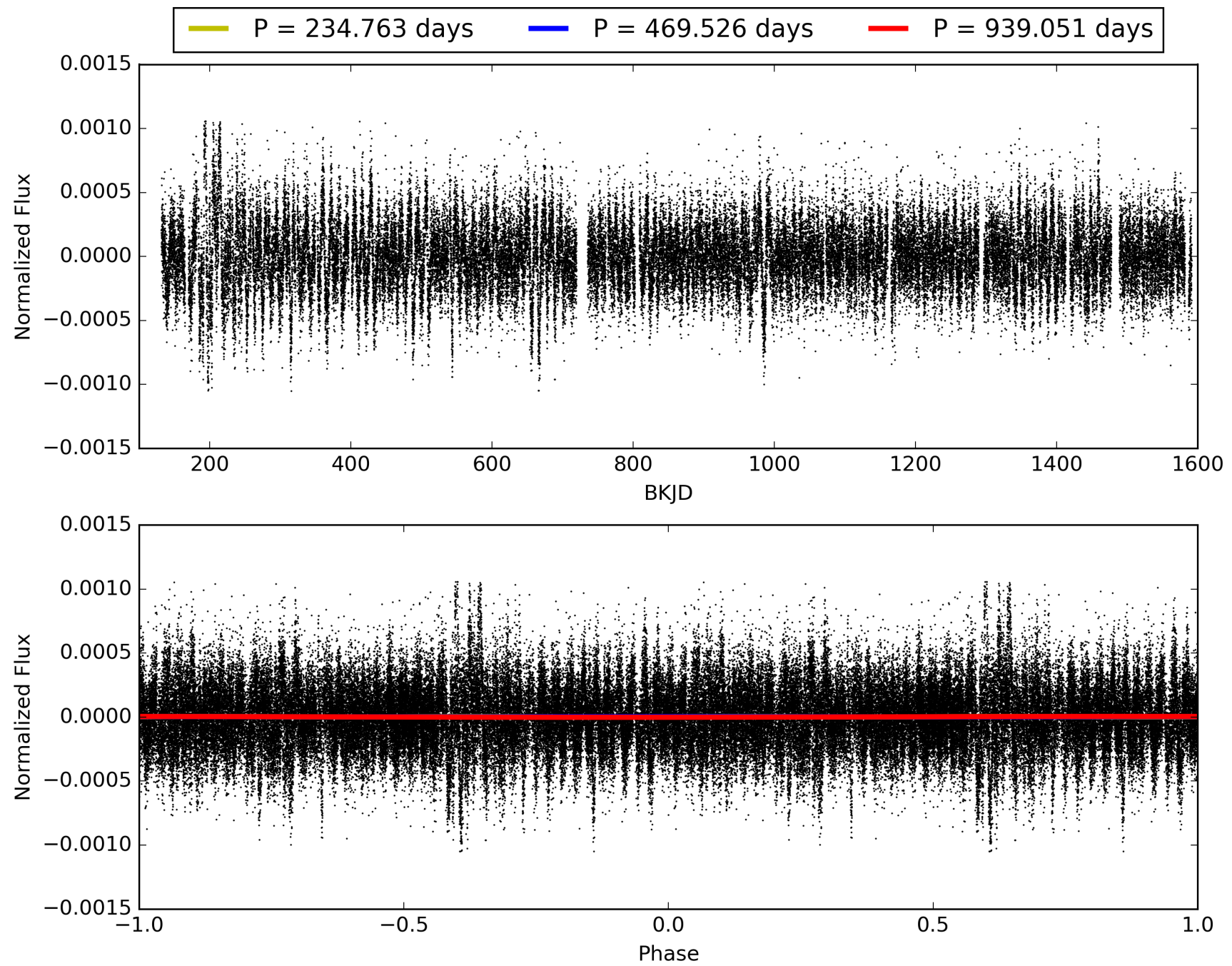
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:43:25 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008042747-01, PDC Light Curves

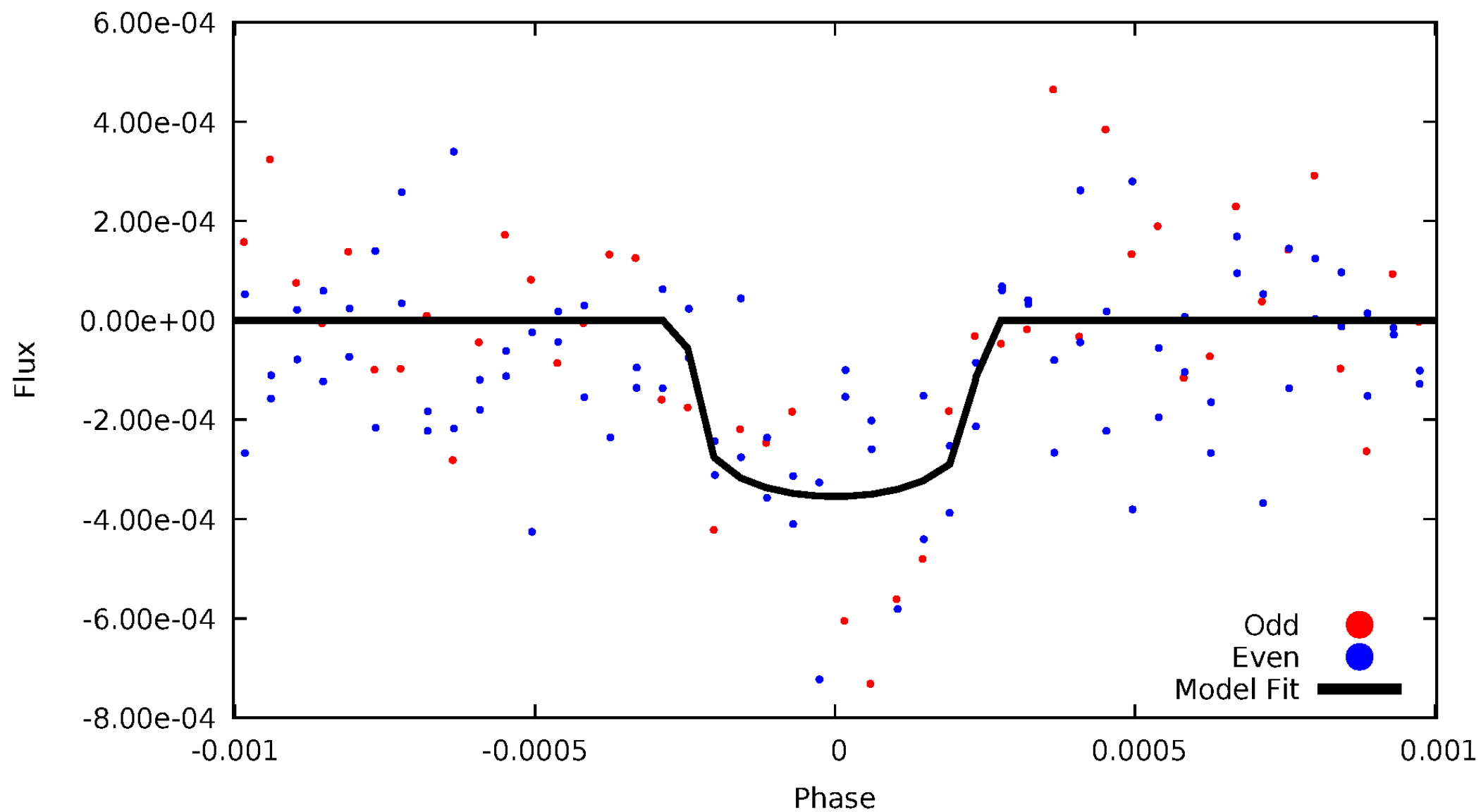


TCE 008042747-01



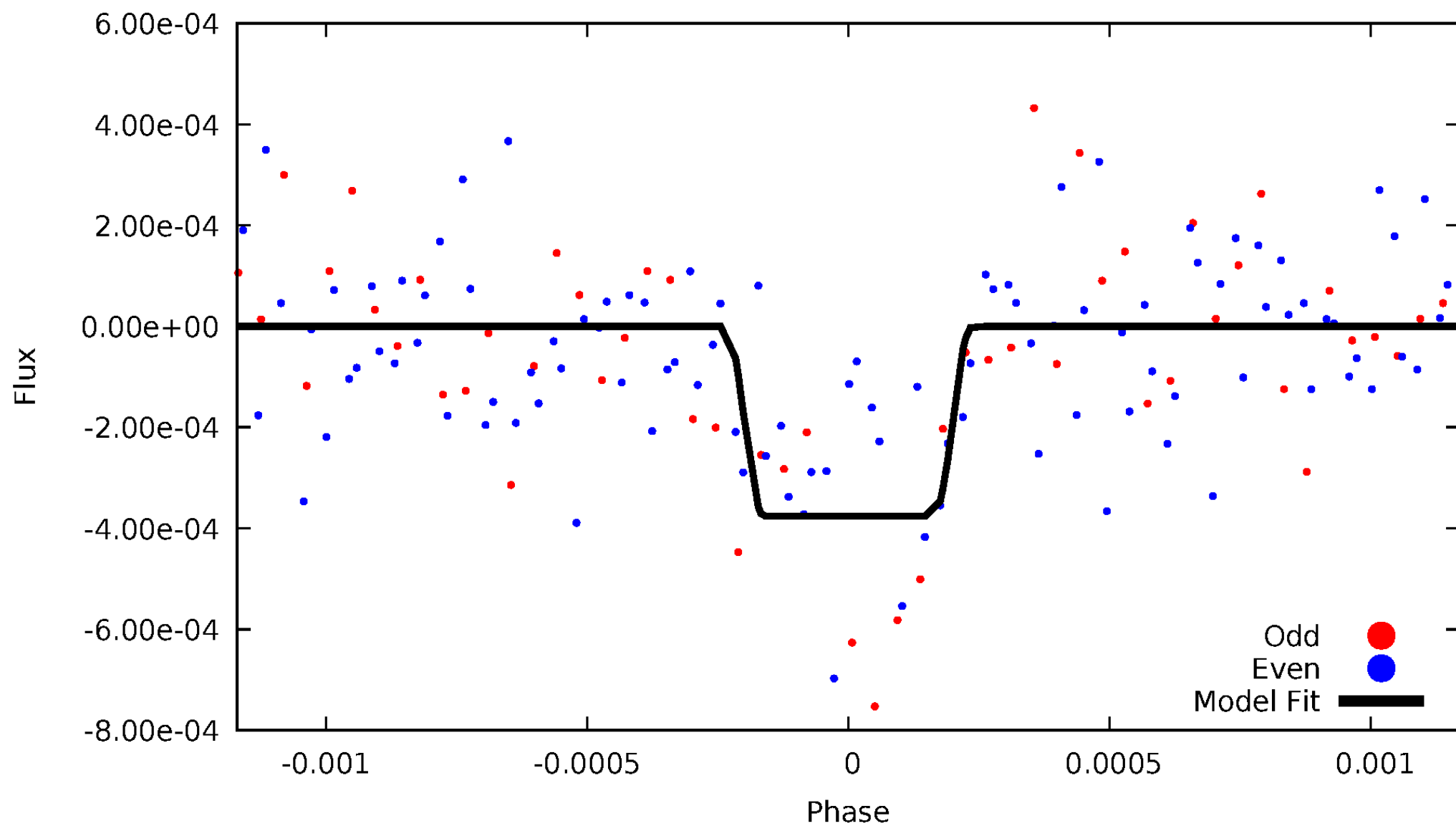
# DV Odd/Even

TCE 008042747-01



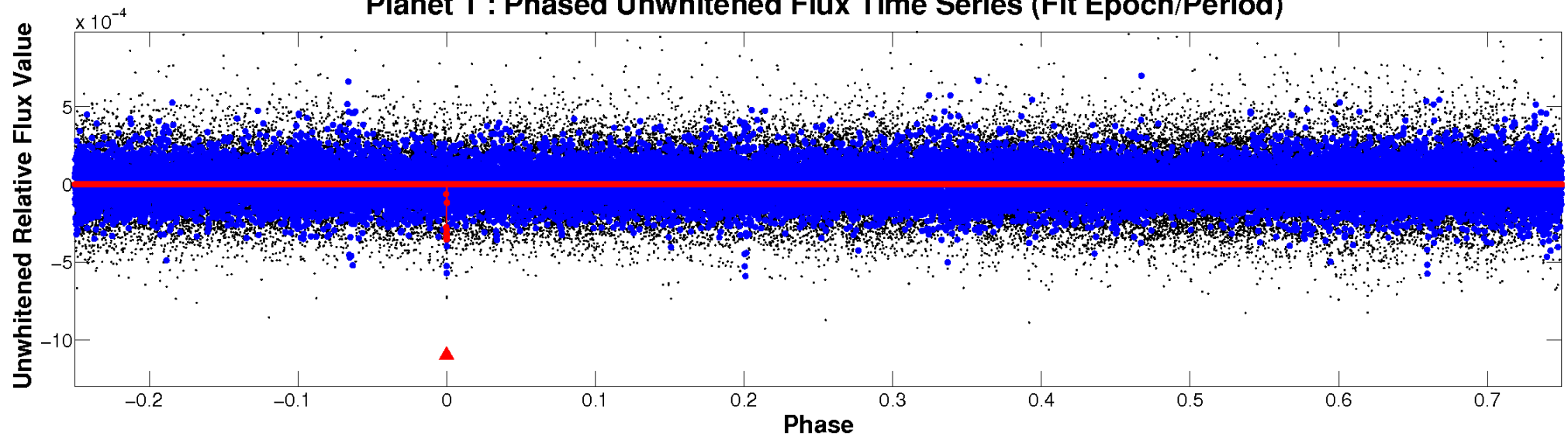
# ALT Odd/Even

TCE 008042747-01

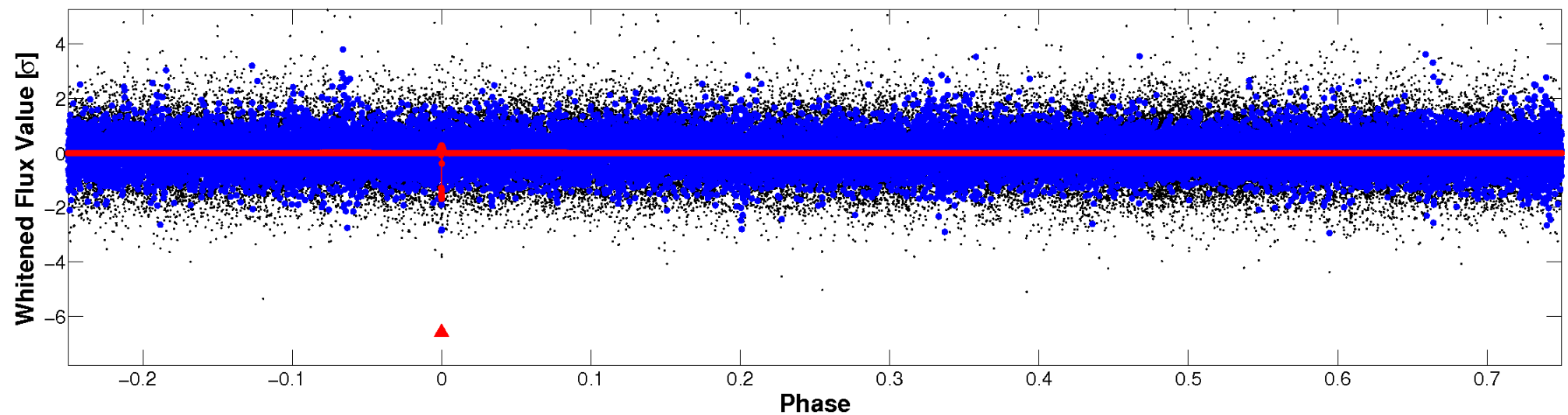


# Non-Whitened Vs. Whitened Light Curve

**Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**



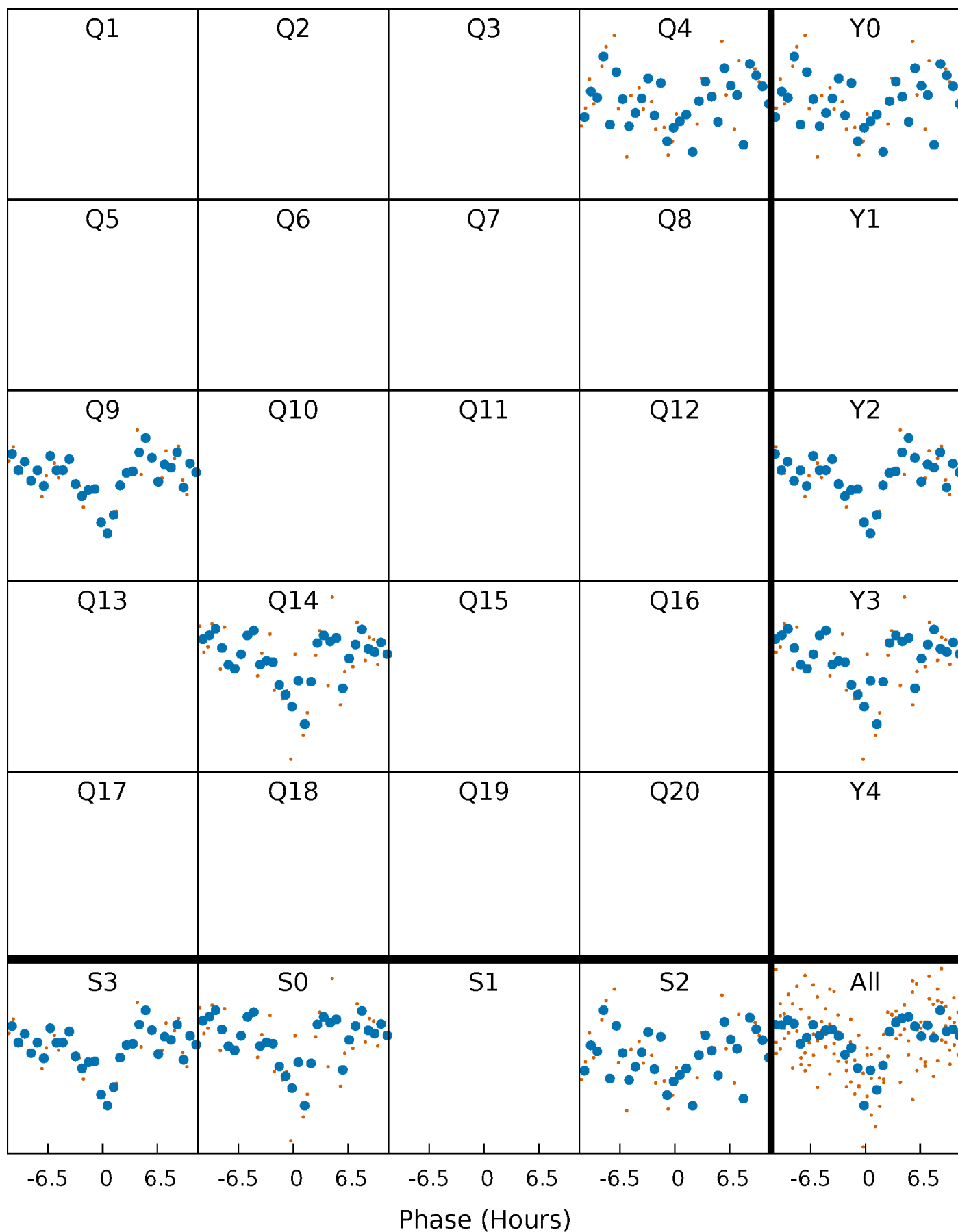
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

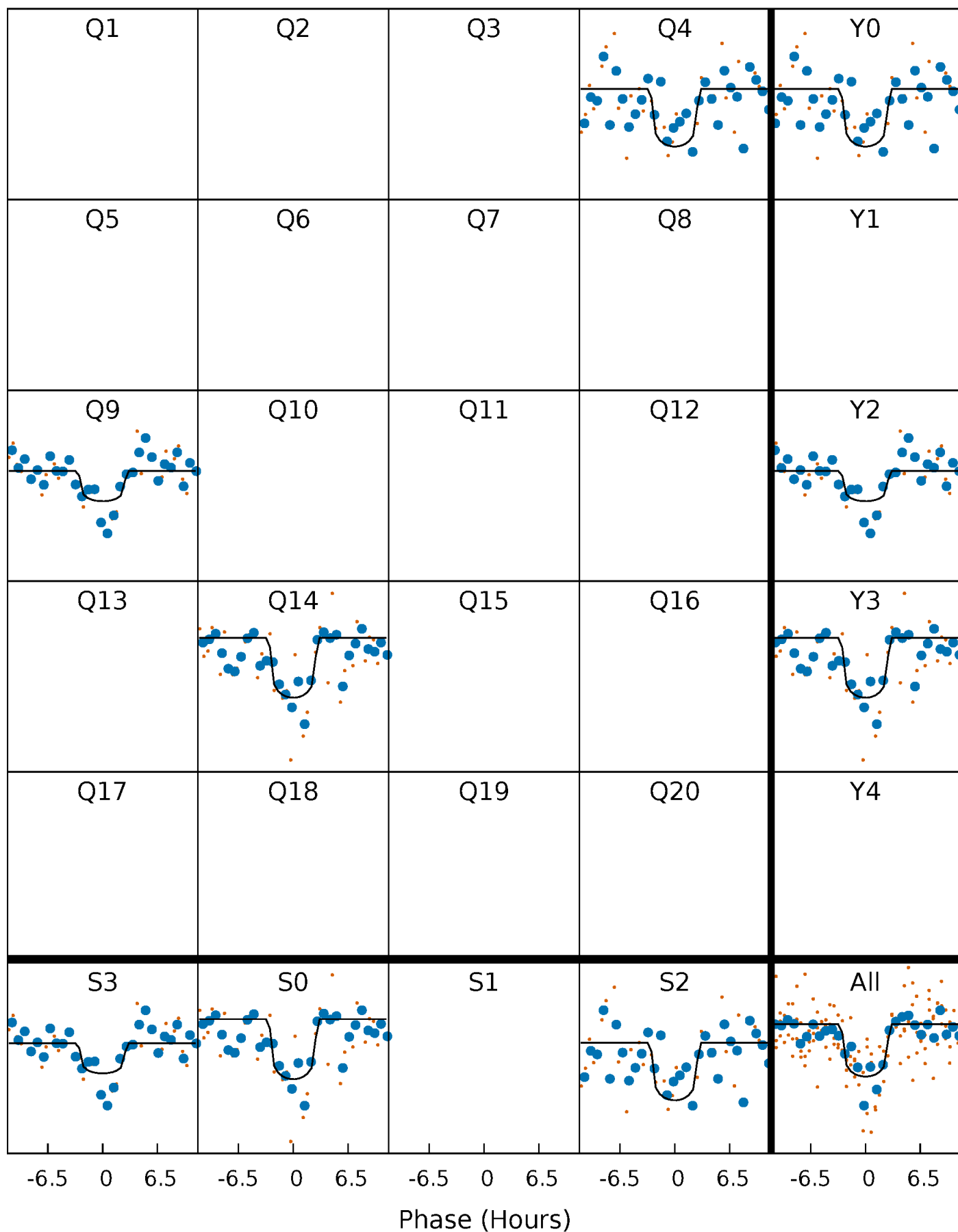
TCE 008042747-01 P=469.525683 Days  $T_0=381.404142$  (BKJD)





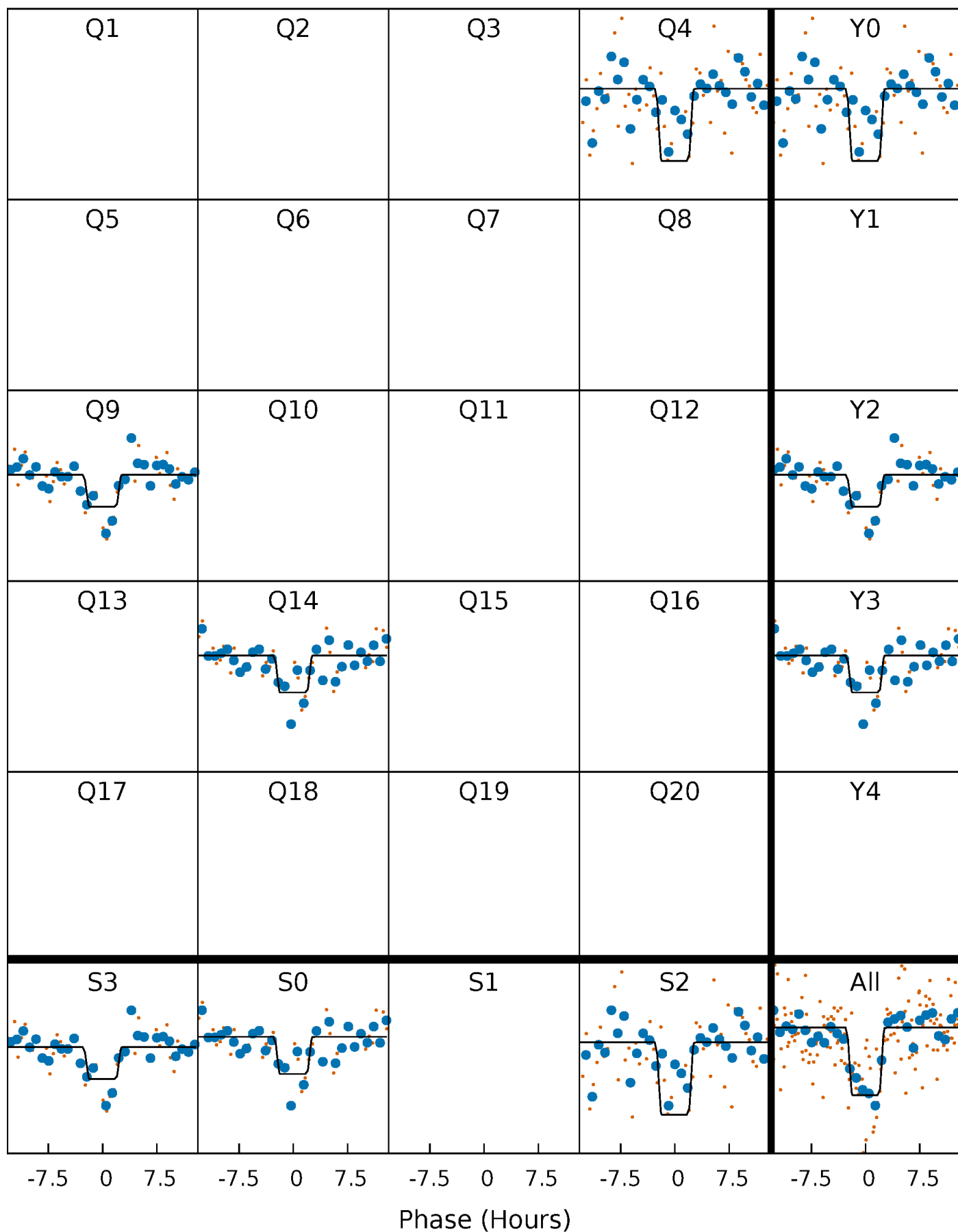
# DV Quarter-Phased Transit Curves

TCE 008042747-01 P=469.525683 Days  $T_0=381.404142$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

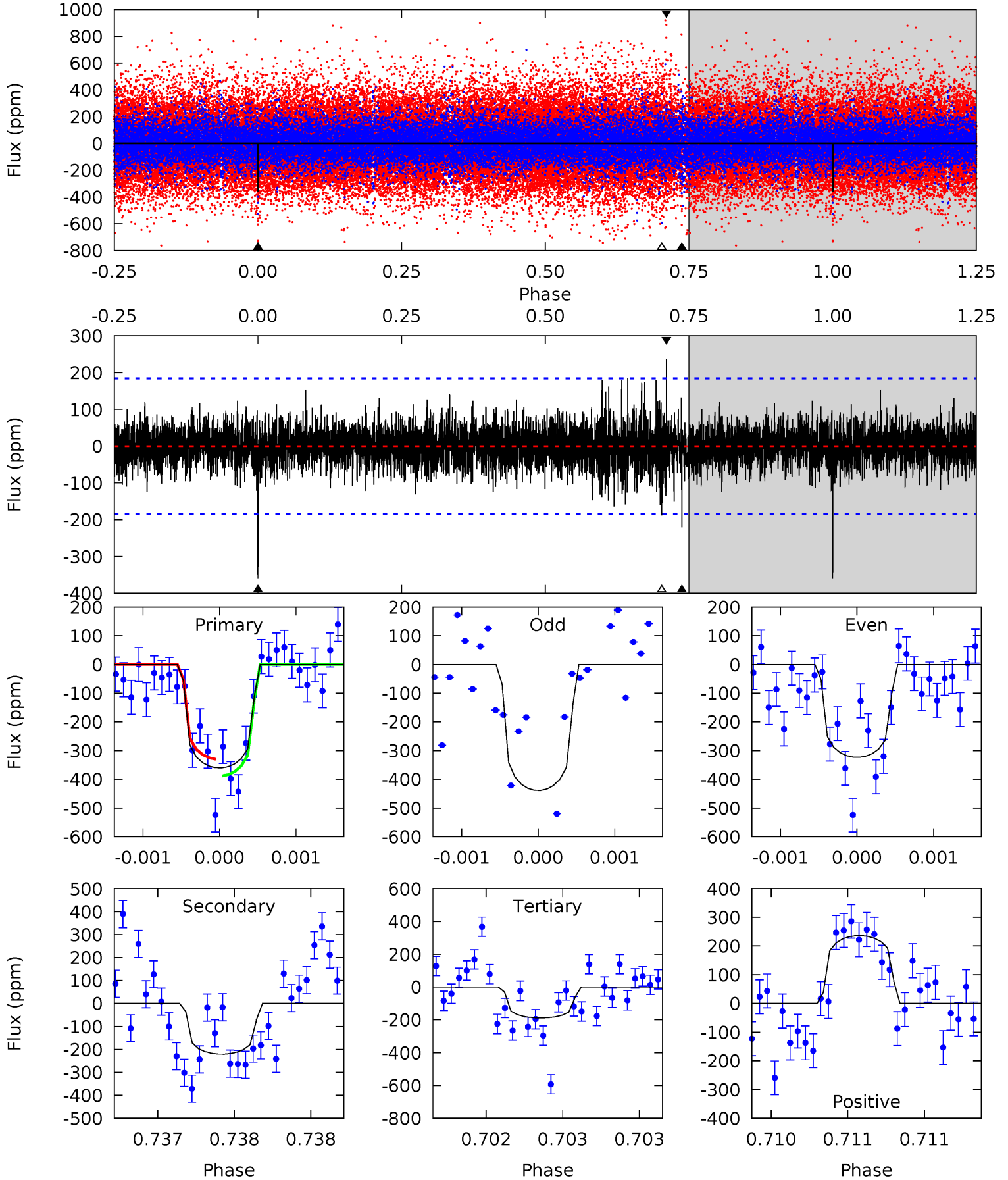
TCE 008042747-01 P=469.522342 Days  $T_0=381.411433$  (BKJD)



# DV Model-Shift Uniqueness Test

008042747-01, P = 469.525683 Days, E = 381.404142 Days

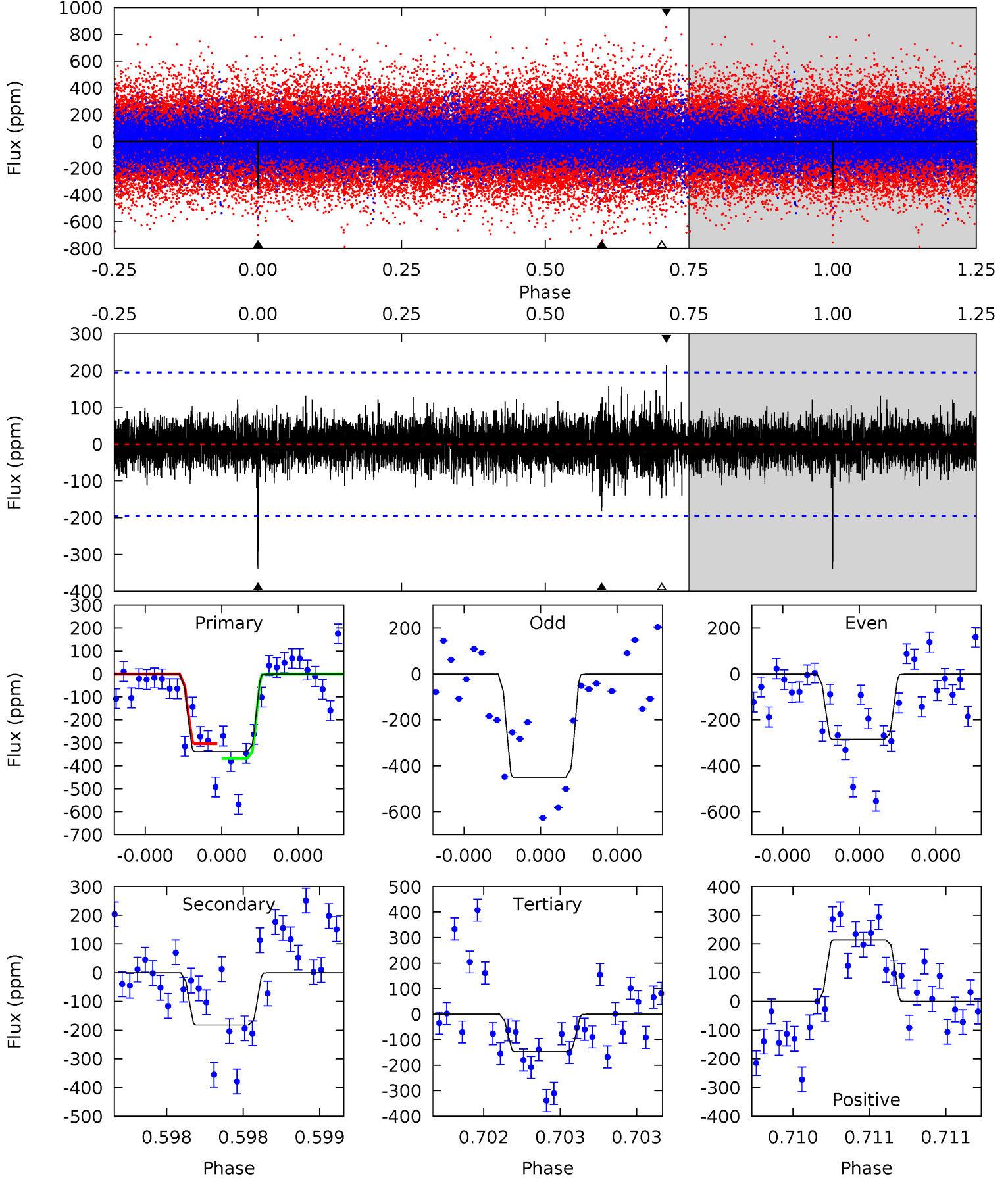
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	6.68	5.70	7.15	5.57	3.47	1.24	5.21	3.75	0.98	-0.47	1.66	0.93	0.40	0.88



# Alt Model-Shift Uniqueness Test

008042747-01, P = 469.522342 Days, E = 381.411433 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.72	5.24	4.22	6.15	5.59	3.51	1.05	5.49	3.57	1.01	-0.92	2.25	0.93	0.39	0.92



### Stellar Parameters For KIC 008042747

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6197^{+172}_{-216}$	$4.449^{+0.056}_{-0.224}$	$-0.080^{+0.250}_{-0.350}$	$1.035^{+0.349}_{-0.116}$	$1.096^{+0.153}_{-0.153}$	$1.394^{+0.419}_{-0.765}$
	+3%/-3%	+1%/-5%	+312%/-438%	+34%/-11%	+14%/-14%	+30%/-55%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 008042747-01 / KOI 7861.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-221 \pm 33$	$2.54^{+1.99}_{-1.43}$	$360^{+29}_{-19}$	$5235^{+2570}_{-1083}$	$27843^{+110314}_{-19260}$
Alt.	$-182 \pm 35$	$2.48^{+1.81}_{-1.40}$	$361^{+30}_{-21}$	$5032^{+2653}_{-947}$	$23411^{+104978}_{-15533}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

## DV Centroid Data

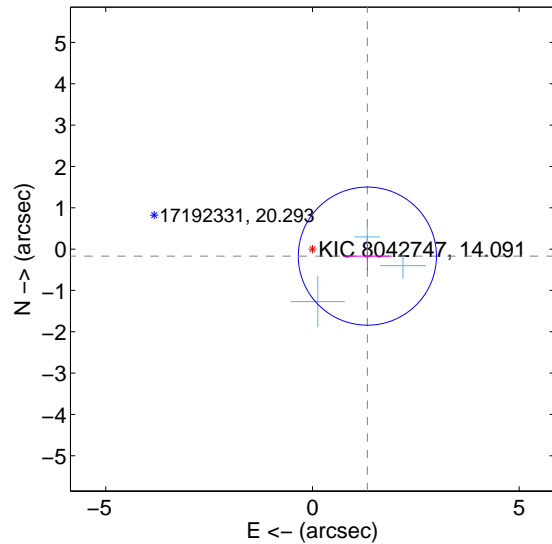
Supplemental centroid analysis for 008042747-01. Kepler magnitude: 14.09. Transit SNR 8.09

There are 3 quarters with good PRF difference image offsets

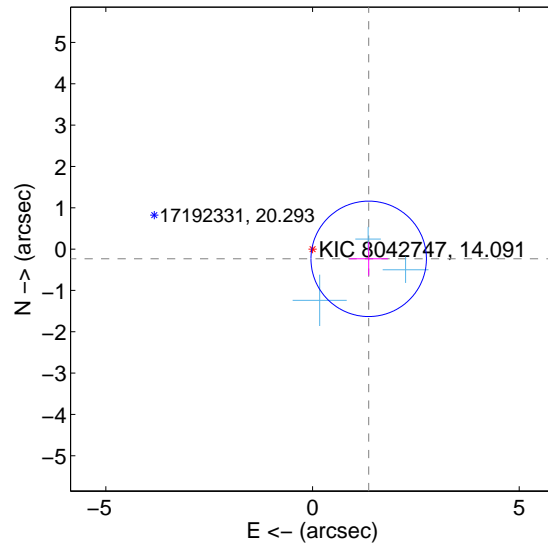
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.340 \pm 0.557$	2.41	$-1.329 \pm 0.590$	$-0.170 \pm 0.345$
PRF-fit source offset from KIC position	$1.379 \pm 0.466$	2.96	$-1.359 \pm 0.467$	$-0.236 \pm 0.406$
photometric centroid source offset	$0.52 \pm 1.45$	0.36	$0.43 \pm 1.45$	$0.29 \pm 1.45$

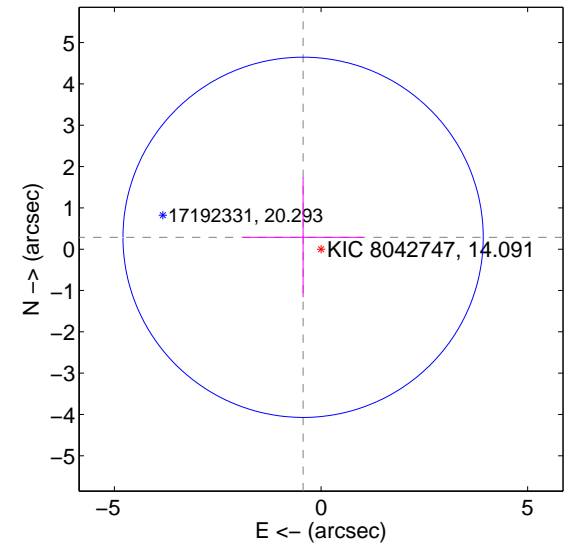
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

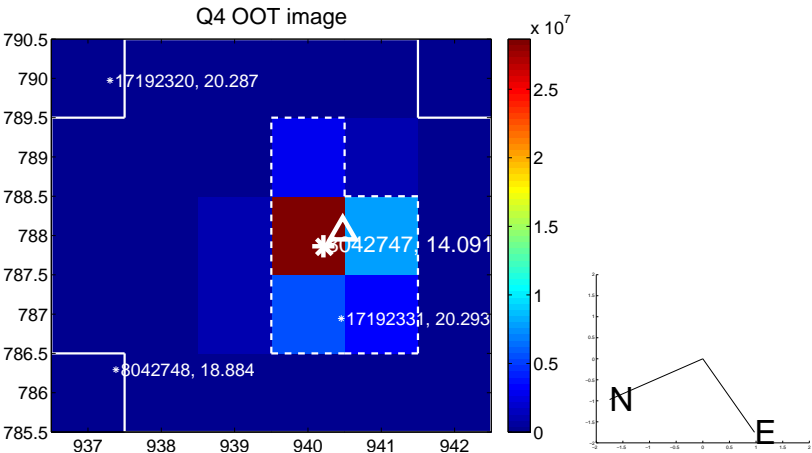
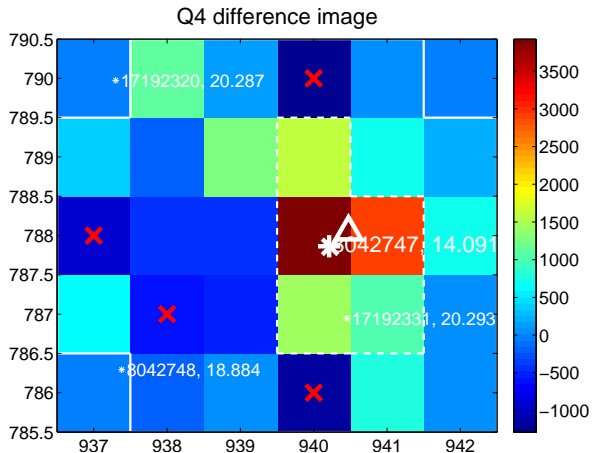
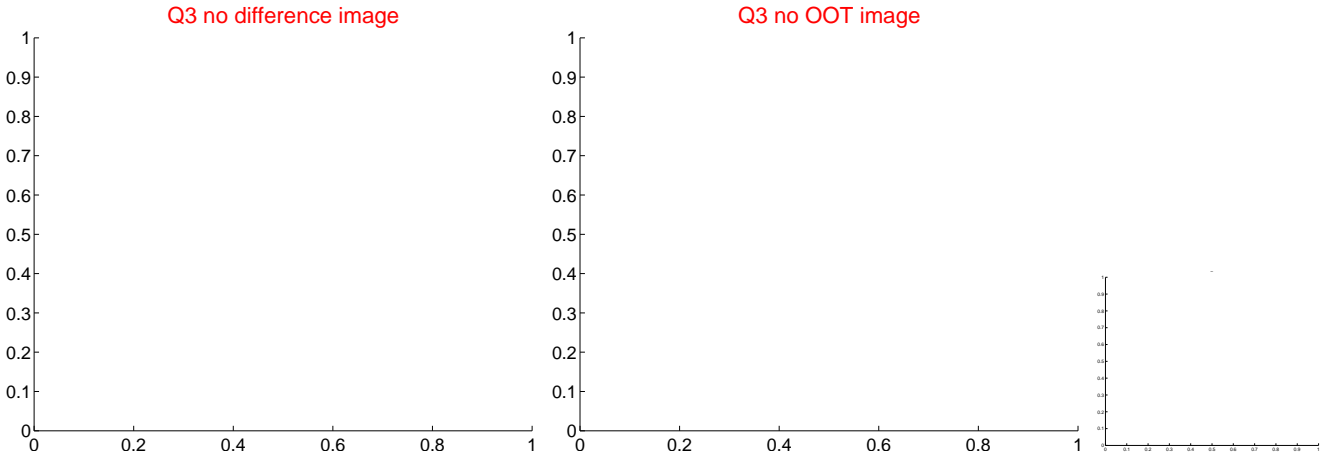
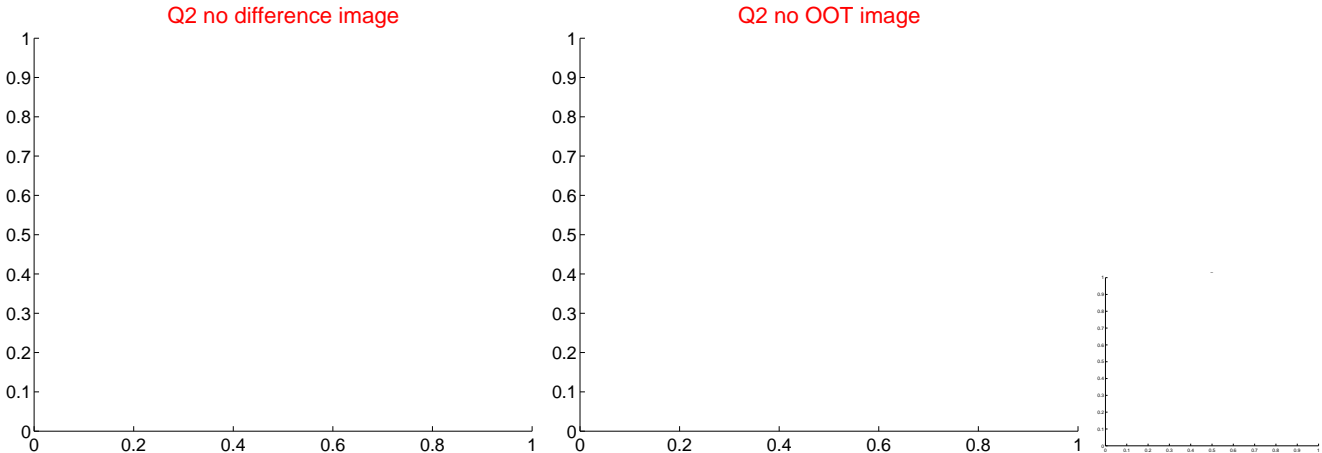
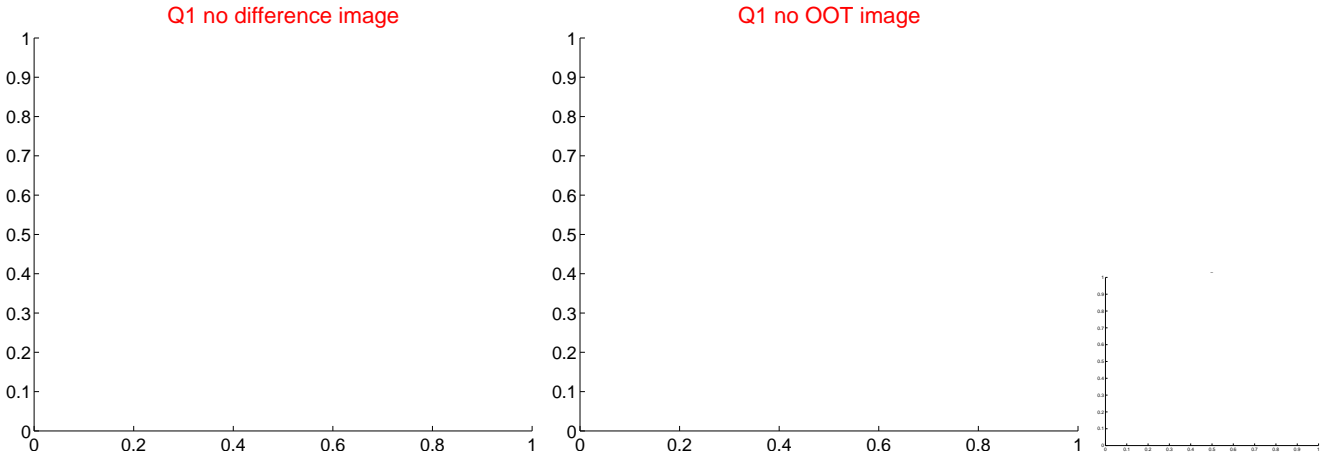


offset from photometric centroids



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value

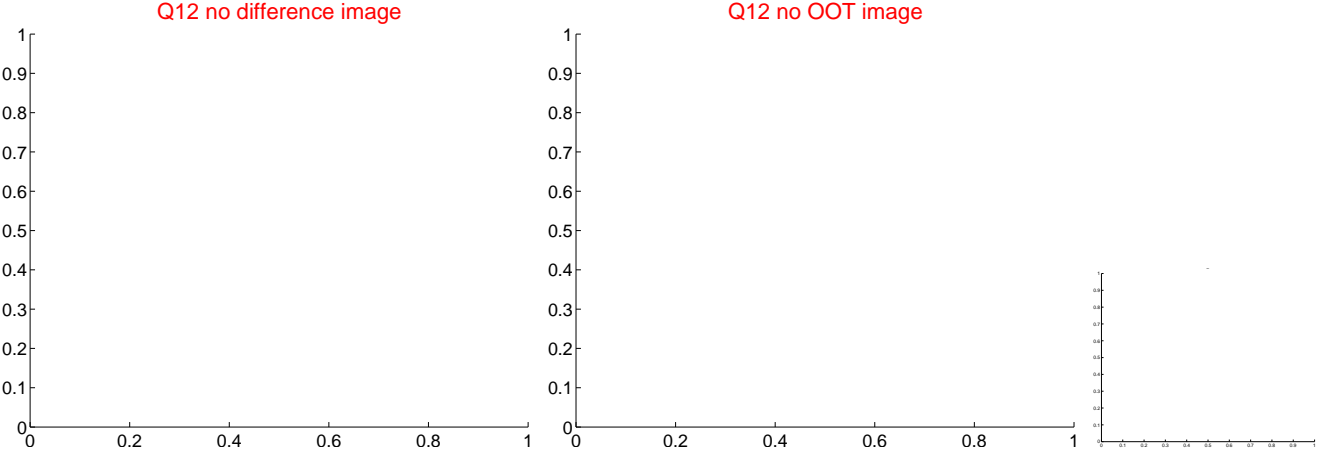
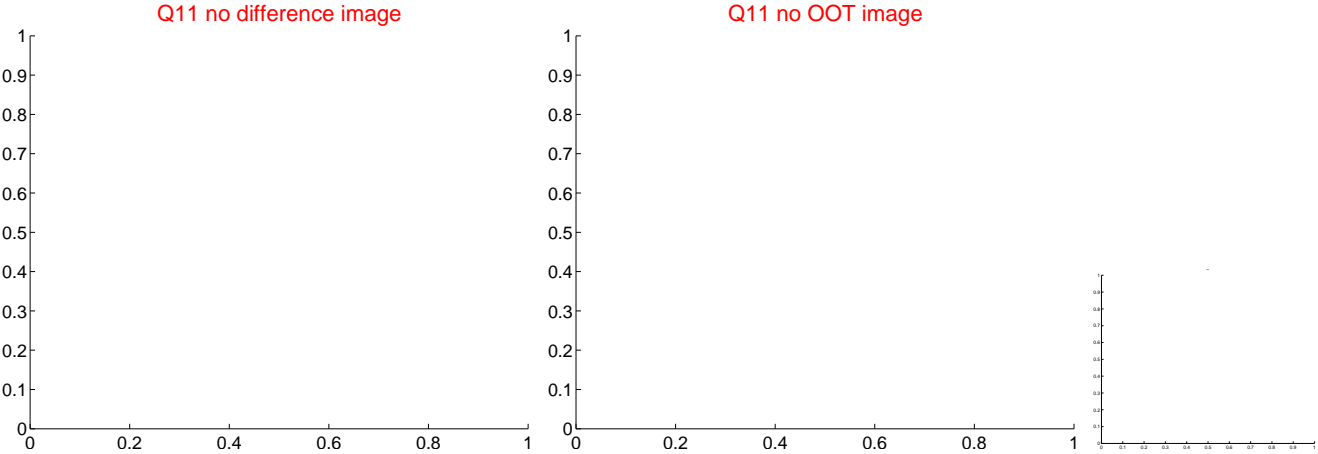
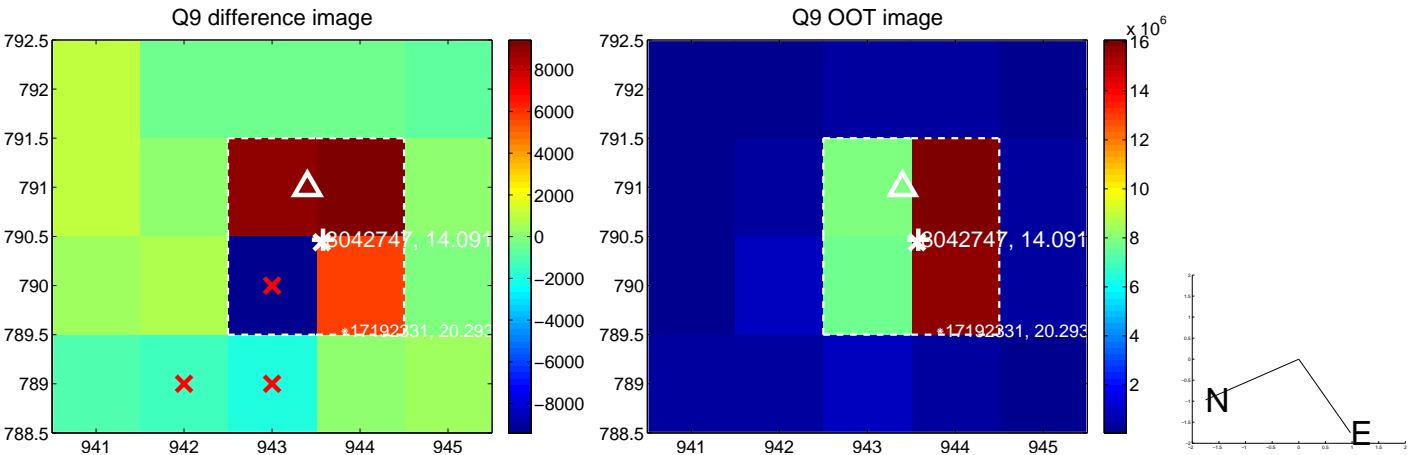




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

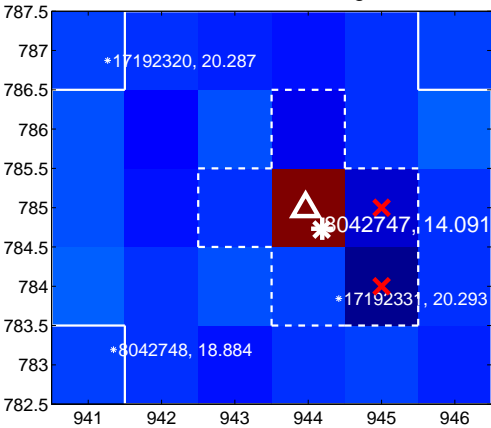
Q13 no difference image



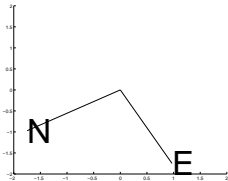
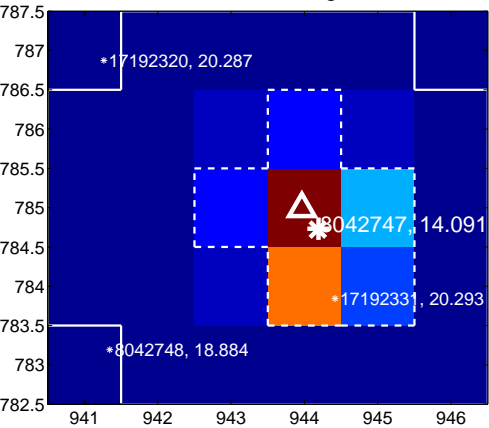
Q13 no OOT image



Q14 difference image



Q14 OOT image



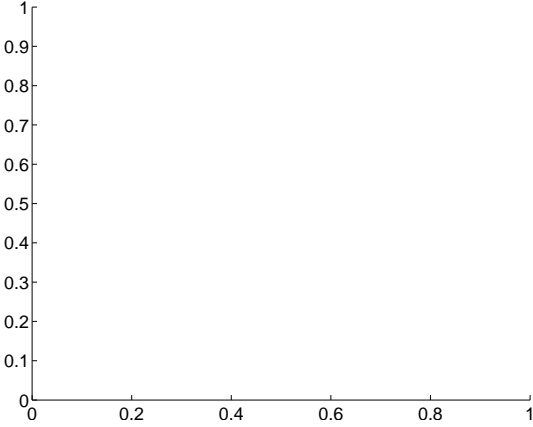
Q15 no difference image



Q15 no OOT image



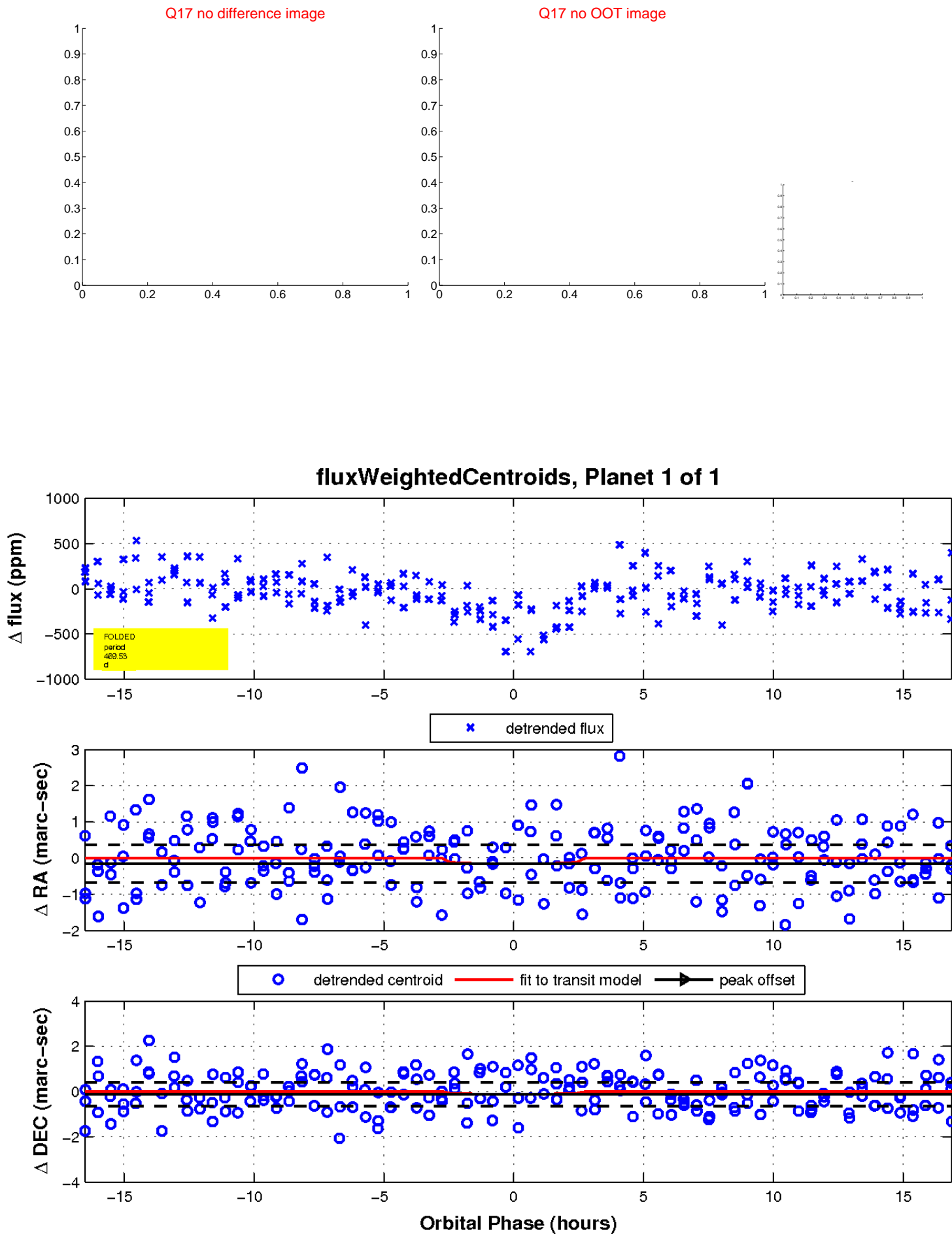
Q16 no difference image



Q16 no OOT image



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination

